

worthy especial notice, however, because it gives great alarm, and may be readily mistaken for pulmonary haemoptysis, or an expectoration of blood.

The action of tobacco-smoking on the heart, so far as I have observed, is depressing. The individual who, from some peculiarity of constitution, feels it in this organ rather than elsewhere, usually complains of a peculiar uneasy sensation about the left nipple—a distressing feeling—not amounting to faintness, but allied to it. In such an example no morbid sound can be detected, but the action of the heart is observed to be feeble, and slightly irregular in rhythm; yet not always so in the same person. An uneasy feeling is also experienced in or beneath the pectoral muscles, but oftener, I think, on the right side than on the left.

On the brain the action of tobacco-smoking is sedative. It appears to diminish the rapidity of cerebral action and check the flow of ideas through the mind. This, I think, is a certain result; and it is in consequence of this action that smoking is so habitual with studious men, or men of contemplative minds. The phrases, "a quiet pipe," or a "comfortable cigar," are significant of this sedative action. It differs, however, in kind from that of opium or henbane, because, as a *general* rule, tobacco does not dispose to sleep: it may in *individual* instances, but not generally, with tobacco-smokers. On the contrary, it rather excites to watchfulness, and in this respect is allied to green tea in its action; or, if not to wakefulness, to dreams, which leave no impression on the memory. When this effect has passed off there appears to be a greater susceptibility in the nervous centres to impressions, as indicated by trembling of the hands, and irritability of temper.

There are a few facts which I would now state generally, and which appear as secondary results of smoking. Constipation and hemorrhoids are often experienced by inveterate smokers. Acne of the face I have observed to be excited and kept up by the habit, and to disappear with the discontinuance of the latter. Blackness of the teeth and gum-boils are not uncommon results. There is also a sallow paleness of the complexion, an irresoluteness of disposition, a want of life and energy, to be observed occasionally in inveterate smokers, who are content with smoking,—that is to say, who do not drink. I have suspected also that it has induced pulmonary phthisis. It is thought that the sexual energy is impaired by the habit, but on this point I have no facts to detail.

21. *Results of Experiments on the Physiological action of Tobacco.* By SAMUEL WRIGHT, M. D., of Birmingham.—The watery infusion of tobacco, whether administered by the mouth or the rectum, or injected into the arteries or the veins, produces, in animals, all the effects of direct sedative action upon the nervous system. As is usually the case under such circumstances, the heart is the organ which chiefly shows the influence of the depressing agency. Its beats invariably lessen in force, but they sometimes become more frequent, at other times more slow; and again, irregularly intermittent. Not always, however, does the heart chiefly indicate the sedative action of tobacco. I have seen, in the dilated pupil, the relaxation and helplessness of limb, the involuntary dribbling away of urine, and escape of feces, proof enough of extreme prostration of strength, whilst the heart has been proportionately only mildly affected. As far as my own experience goes, there is no truth in the notion that the sedative action of tobacco is due to its lessening the force and frequency of the heart's action. Its influence is directly upon the nervous system, and indirectly on the chief organ of circulation.

The action of tobacco on man seems to be precisely the same as on the inferior animals. I have never been able to discover that it is capable of affecting the brain, as an intellectual organ, otherwise than through its sedative action. My observations and experiments have all tended to prove, that, when the intellectual function suffers from the action of tobacco upon the system, it is due to some error of circulation consequent upon the depressing influence of the drug. The most extreme prostration, however, may be produced, without the processes of intelligence being much affected. I was once hastily summoned to see a man, said to be dying; and, in truth, he was in a most complete state of collapse. He was cold all over, pallid, and covered with a cold sticky sweat; pulsation was imperceptible in the radial or temporal artery, the heart's sounds were inaudible even to the stethoscope, and the only proof of vitality not having left was a deep sigh drawn every fifteen or twenty seconds. I learnt that the poor fellow had been

induced to sit over a chamber-pot containing half an ounce of tobacco, with some burning coals thrown upon it, to ease himself of piles. He had sat for a few minutes, and at last fell off in the prostrate condition I have described. The treatment consisted in pouring brandy down his throat, applying strong friction over the neighbourhood of the heart, and putting his feet into hot mustard and water. In a short time reaction came on, and recovery was finally complete. I was assured by this man, that, amid his utter powerlessness, he was perfectly sensible, during the greater part of the time, of all that was passing around. In proof of this, he related most of the conversation that had occurred concerning him.

According to my own observations, the essential oil of tobacco obtained by ether produces all the physiological effects of the watery infusion. Any stimulant action that may be produced by the empyreumatic oil is due to some stimulating material engendered by the elevated temperature.

In giving to dogs small quantities of tobacco, of from two to five grains, twice or thrice daily, mixed with their food, the result was a slow decension of nervous power, ending in complete marasmus and starvation. In particular, I remarked an intermittent action of the heart, habitual dragging of the hind legs, a seeming loss of venereal power, and a total disinclination for sexual intercourse. The testes became soft and shrivelled, and the muscles of voluntary motion underwent the same change. The hair at first became rough, and then it fell off; the pupils enlarged, and the eyes swam with tears, succeeded finally by purulent and ichorous discharge. Sloughing of the eyelids, and blindness, generally preceded death. After death, the blood was invariably found fluid, deficient in fibrin, and particularly so in red globules: the heart was pale, soft, and smaller than natural: the body never stiffened, and decomposed very rapidly. The gums began to swell and bleed early in the experiments, and the teeth loosened, and sometimes dropped out. The mucous membrane of the mouth, nose and trachea was softer, more tumid, and more vascular than usual.

In carefully watching the effects of the excessive or long-continued use of tobacco upon the human subject, I am not able to fix upon any that are not due, immediately or remotely, to the physiological influence above noted. To this cause I attribute many disasters I have known to succeed an extravagant use of tobacco by individuals of strong, hearty, nervous temperament, and a more moderate use of it by subjects physically less favoured. The nervous system, as I have said, has peculiarly suffered; and thence have arisen obtuseness in the functions of the several senses, irritability, indecision, and loss of courage, or of determination of action, weakness of the muscles of voluntary motion, and depravity of the secretions. Particularly have I observed the buccal membrane (in smokers) to become vascular, swollen, irritable, and prone to hemorrhage. I have never observed an exception to the fact that in smokers the voice has deepened in tone (I suppose from relaxation), or become hoarse or oppressed through excessive mucous secretion. Many an irritable nervous cough, without increased secretion from the tracheo bronchial membrane, and many a cough dependent upon increased secretion, have I known to follow the frequent use of tobacco in smoking. I believe it to be a great antagonist of the functions of the nervous system, especially in its relations to the organs of sense, of reproduction, and of digestion. I think I have known it produce perfect atony, with all its train of consequences. I have known many instances in which I was unable to prove that the ordinary use of tobacco did any harm; I have known many more in which I could prove that it did do harm: and I have not known any good from it that might not have been obtained from less objectionable means.—*Lond. Med. Gaz.*, Oct., 1846.

22. *Excessive secretion of Earthy Phosphates by the Kidneys, with long continued irritability of the stomach.*—Dr. GOLDING BIRD has published in the *London Medical Gazette*, (July, 1846,) an interesting case illustrative of the remarkable relation existing between the functions of the stomach and kidneys. In his remarks on the case he observes:—“The connection of alkaline urine with blows or other mechanical injuries inflicted upon the spine is now generally recognized, and every one is familiar with the almost constant presence of phosphatic deposits as the result. But I am not aware of attention having been previously directed to the connection of this condition of urine, and attending diuresis, with intense irritability of sto-